

**WORK DESCRIPTION – THRUST CHAMBER PREPARATION AND COATING**

**01. De-containerization of Thrust chamber – 60 Nos.**

**Work description**

- a) Removal and Lifting of container cover and placing it on the floor
- b) Removal of spring loaded arresting pin, tie rods, half ring arrester and injector bolts
- c) Taking out the thrust chamber from the container
- d) Positioning of thrust chamber inside the 'A' frame fixture
- e) Removal of dummy injector from thrust chamber and placing it inside the container
- f) Replacing the container cover using crane and fastening it with bolt & nuts

**02. Loading & Transportation of thrust chamber - 200 Nos.**

**Work description**

- a) Loading of thrust chamber, transportation to thrust chamber building from stores for inspection
- b) Loading of thrust chamber, transportation from thrust chamber building to grit blasting facility
- c) Loading of thrust chamber, transportation from grit blasting facility to thrust chamber building
- d) Loading of thrust chamber, transportation from thrust chamber building to grit blasting facility
- e) Loading of thrust chamber, transportation from grit blasting facility to Plasma coating facility
- f) Loading of thrust chamber, transportation from Plasma coating facility to Vikas Engine integration building

**03. Thrust Chamber preparation activities - 60 Nos.**

- a) Mounting of thrust chamber on alignment tower
- b) Supporting activities for thrust chamber inspection
- c) Supporting activities for thrust chamber alignment check and TSR grinding
- d) Thrust chamber Tilting activities
- e) Grit blasting of thrust chamber for throat fixing activity

- f) Thrust chamber Tilting activities
- g) Supporting for Throat fixing activity
- h) Application of SESCO over throat
- i) Thrust chamber Tilting activities
- j) Supporting activity during RR welding operations
- k) Grit blasting activity for divergent coating

**04. Hydro testing of UH25 inlet toroid and pressure tapping ports in thrust chamber - 30 Nos.**

**Work description**

- a) Preparation of hardware for hydro test
- b) Assembling pressure gauges, valves, regulators and end fittings
- c) Conducting of Hydro test
- d) Purging of UH25 inlet toroid after hydro test

**05. Load testing of material handling shackles - 200 Nos.**

**Work description**

- a) Periodical load testing of tie rods, shackles
- b) Periodical load testing of wire ropes

**06. Load testing of fixtures - 50 Nos.**

**Work description**

- a) Periodical load testing of fixtures available in thrust chamber preparation facility

**07. Turbo pump components coating activities - 500 Nos.**

- a) Cleaning of hardware with Perchloro ethylene bath
- b) Fixturing of hardware for grit blasting operation
- c) Grit blasting of the component
- d) Fixturing of hardware for coating operation
- e) Hardware Mounting on job manipulator
- f) During coating supports to coating operation
- g) Job finishing and cleaning

**08. Operational works in Plasma coating facility – 60 Nos.**

- a) Operating of heating oven for powder heating
- b) Powder hopper cleaning in coating facility
- c) Operation of pressurization setup in coating facility
- d) Maintenance & stocking of spares for coating facility

- e) Thrust chamber coating operations including powder flow check, spray distance measurement, powder loading and coating thickness measurements
- f) Removal of thrust chamber from coating machine
- g) Mounting of thrust chamber on cleaning fixture
- h) Thrust chamber cleaning which includes,
  - Throat area cleaning
  - IPA handling & IPA rinsing
  - Thrust chamber rotation during cleaning
  - Assistance to fibroscopy inspection
- i) Removal of thrust chamber from cleaning fixture
- j) Mounting of thrust chamber on transportation fixture
- k) Load testing of following fixtures,
  - Grit blasting fixture
  - RR welding fixture
  - Measurement fixture
  - 'A' frame fixture
  - Conical thrust chamber transportation fixture
  - Tilting fixture for conical nozzle
  - Tilting fixture for contour nozzle

**1. WORK DESCRIPTION – HEAT TREATMENT FACILITY**

<b>Sl. No.</b>	<b>Work Description</b>	<b>Quantity</b>	<b>Unit</b>
1	Loading and transportation of the hardware	251	No of batches
2	Visual inspection of the hardware	251	No of batches
3	Hardware inventory inward outward maintenance	251	No of batches
4	Hardware preparation for the heat treatment	251	No of batches
5	cleaning of the chamber	251	No of batches
6	Ultrasonic Cleaning of the hardware	251	No of batches
7	Mounting of the hardware	251	No of batches
8	Operation of the furnace	251	No of batches
9	Report preparation	251	No of batches
10	Log sheet maintenance	251	No of batches
11	Heat treatment specimen preparation	251	No of batches
12	Weekly maintenance	104	No of batches
13	Monthly maintenance	24	No of times
14	Half yearly maintenance	4	No of times
15	Yearly maintenance	2	No of times



## **2. Terms and conditions for heat treatment works (Sl.No 1 to 15):**

### **2.1 Services provided by IPRC:**

- 2.1.1 Furnishing of job details
- 2.1.2 Provision of welding machine, accessories and consumables
- 2.1.3 Supply of electricity, water, components and interface elements
- 2.1.4 Heat treatment parameters
- 2.1.5 Contractor has to strictly adhere to the heat treatment parameters provided by the focal point

### **2.2 Contractor's Scope:**

Deputing one operator and one assistant as on when requirement is projected by Cryo welding facility, IPRC.

### **2.3 Inspection:**

The work shall be subjected to inspection by IPRC. The focal point of the facility, in which the work package is executed shall be at his discretion, perform inspection on his own or arrange for inspection. The scope of inspection shall be as follows

2.3.1 Supervision and overseeing of the works carried out by the operator

2.3.3 Supervision of the heat treatment of the jobs carried out by the operator

### **2.4 Heat Treatment Procedure:**

The Operator shall employ the heat treatment procedure specified by IPRC

## 2.5 Description of Work:

- 2.5.1 Loading and transportation of the hardware (work item 1) shall be performed as per the operation manual instructions and under the supervision of engineer in charge.
- 2.5.2 Visual inspection of the hardware (work item 2) shall be performed as per the operation manual instructions and under the supervision of engineer in charge.
- 2.5.3 Hardware inventory inward outward maintenance (work item 3) shall be performed as per the operation manual instructions and under the supervision of engineer in charge.
- 2.5.4 Hardware preparation for the heat treatment (work item 4) shall be performed as per the operation manual instructions and under the supervision of engineer in charge.
- 2.5.5 Cleaning of the chamber (work item 5) Shall be performed as per the operation manual instructions and under the supervision of engineer in charge.
- 2.5.6 Ultrasonic Cleaning of the hardware (work item 6) shall be performed as per the operation manual instructions and under the supervision of engineer in charge.
- 2.5.7 Mounting of the hardware (work item 7) shall be performed as per the operation manual instructions and under the supervision of engineer in charge.
- 2.5.8 Operation of the furnace (work item 8) shall be performed as per the operation manual instructions and under the supervision of engineer in charge.

2.5.9 Report preparation (work item 9) shall be performed as per the operation manual instructions and under the supervision of engineer in charge.

2.5.10 Log sheet maintenance (work item 10) shall be performed as per the operation manual instructions and under the supervision of engineer in charge.

2.5.11 Heat treatment specimen preparation (work item 11) shall be performed as per the operation manual instructions and under the supervision of engineer in charge.

2.5.12 Maintenance activities of the heat treatment furnace (work item 12 to 15) The Weekly, monthly, half yearly and yearly maintenance activities shall be carried out as per the manual instructions and under the supervision of the Engineer in charge.

**Annexure- C****WORK DESCRIPTION FOR DATA ENTRY ACTIVITIES**

S.No.	Work Definition	Quantity	Unit
1.	Typing of Technical Checklist	2400	Nos.
2.	Typing of Technical Specifications	4800	Nos.
3.	Typing of Monthly Report	240	Nos.
4.	Typing of Leave/Tour Report	1200	Nos.
5.	Typing of indent documents	4800	Nos.
6.	Typing of Letters/Fax messages/Email's/Logistic request	4800	Nos.
7.	Typing of procedure documents and manuals	6000	Nos.
8.	Typing of Minutes of meeting	2400	Nos.
9.	Inward/Outward records entries	7440	Nos.
10.	Photocopy of documents and records	31200	Nos.
11.	Scanning of documents and records	13000	Nos.
12.	Filling and organizing of records and documents	7440	Nos.